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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,524	08/05/2003	Hiroshi Kushitani	MAT-8438US	6895

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EXAMINER
SUMMONS, BARBARA

ART UNIT	PAPER NUMBER
2817	

DATE MAILED: 09/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/634,524	KUSHITANI ET AL.	
	Examiner	Art Unit	
	Barbara Summons	2817	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-12* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *05 August 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figure 10 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated (see page 2, the last line thereof). See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The abstract of the disclosure is objected to because on line 11 (by the margin notation) "first node" should be - - third node - - since the third inductance element 25 (Fig. 1) is between the third node 21 and ground terminal 24 (see page 3, lines 13-14). Correction is required. See MPEP § 608.01(b).

3. The disclosure is objected to because of the following informalities: On page 2, on line 8, note that "first node" should be - - third node - - (see the objection to the abstract above). On page 3, on line 11 (as numbered in the margin), "the second grounding node 20" should correctly be - - a third grounding node 21 - - (see Fig. 1). On page 3, line 12, "to a third" should be - - and the third - -. On page 6, on each of lines 7 and 8, note that "Fig. 10" should correctly be - - Fig. 9 - -. Appropriate correction is required.

Claim Objections

4. Claims 1 and 7 are objected to because of the following informalities:

In claim 1, on line 14 thereof (15 in the margin notation), note that "first" should be - - third - - (see objections to the abstract and specification above and Fig. 1).

Similarly, in claim 7, on line 16 thereof (line 3 on page 9), "first" should correctly be - - third - -. Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 1, 2, 7 and 8 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Noguchi et al. U.S. 6,677,835 taken together with Inoue U.S. Pat. App. Pub. number US 2003/0062969.

Fig. 20 of Noguchi et al. discloses a surface acoustic wave (SAW) filter comprising: input/output terminals IN and OUT; a series resonator 100; first and second

parallel resonators 110 and 111 having one port connected to respective ports of the series resonators at nodes P3 and P4; first and second nodes P1 and P2 connected to the respective other ports of the first and second parallel resonators; first and second inductance elements L12 and L23 having one end connected to the first and second nodes P1 and P2, respectively; a third node P51 connected to the other ends of the first and second inductance elements; and a third inductance element L13 connected between the third node P51 and a grounding terminal P56. That is, Fig. 20 of Noguchi et al. is the same as Applicants' Fig. 1 without the capacitance. It should also be noted that Noguchi discloses that Fig. 20 is an equivalent of its Fig. 1 in the same manner as Applicants note their Fig. 1 is an equivalent of their Fig. 5. Regarding claims 2 and 8, the resonators are formed on piezoelectric substrate 21 (see e.g. Fig. 11). Regarding claim 7, Noguchi et al. discloses using its filter in larger electronic components such as cellular phones (see col. 1, lines 9-12).

However, Noguchi et al. does not disclose a capacitance element connected between the first and second nodes P1 and P2.

Fig. 32 of Inoue discloses a similar SAW filter, which, if it had only two L-stages, would be the same π - type ladder filter as Noguchi et al. Furthermore, Inoue discloses improving this filter by providing a capacitance between the ground ends of the parallel resonators connected closest to the input and closest to the output as shown in Fig. 4 (see the specification at sections [0104] - [0106]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the SAW filter of Noguchi et al. (Fig. 20)

by providing a capacitance between the first node P1 closest to the input and the second node P2 closest to the output as taught, for example, by Inoue (see Fig. 4) because of the explicit suggestion to do so by Inoue (see sections [0104]-[0106]) to provide the benefit of increased attenuation at an attenuation pole f_{LP} (Fig. 5) at the lower end of the pass band (see sections [0105] and [0111]-[0113]).

Additionally, it would have been equally obvious to one of ordinary skill in the art at the time the invention was made to have modified the SAW filter of Inoue (Fig. 4) such that it would have been only a two stage π - type ladder filter the same as Applicants' Fig. 1, because such an obvious modification to the number of stages of a filter would have been merely dependent upon the design requirements of the filter as would have been known by one of ordinary skill in the art and as implicitly suggested by Noguchi et al. showing a two-stage π - type ladder filter or more stages (see Fig. 1 vs. Figs. 14 and 16).

7. Claims 3-6 and 9-12 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Noguchi et al./Inoue as applied to claims 1 and 7 above, and further in view of Ikeda et al. JP 2001-168672.

The Noguchi et al./Inoue combination discloses the invention as discussed above, except for disclosing the specific structure of the capacitance element.

It should be further noted that Inoue explicitly discloses that the capacitance element may be formed on the piezoelectric SAW filter chip 11 as part of the SAW filter circuit, as well as on the package mounting substrate 12 (Fig. 1) as a circuit trace or chip (see e.g. section [0109]).

Ikeda et al. discloses some structures for capacitance elements formed on the piezoelectric substrate of SAW filters including interdigital electrodes 15 (Fig. 1) and electrodes facing each other (see 25, 25a and 25b in Fig. 2) and extending from the nodes on the piezoelectric substrate to be connected by the capacitance element.

Consequently, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the SAW filter component of the Noguchi et al./Inoue combination, if even necessary, by having provided the capacitance element by interdigital electrodes or by electrodes facing each other and extending from the nodes to be connected by the capacitance element as taught, for example, by Ikeda et al. (Figs. 1 and 2) because Inoue explicitly suggests forming the capacitance element on the piezoelectric SAW filter substrate as part of the SAW filter circuit (see e.g. section [0109]) and because such capacitance element structures would have been well known art recognized equivalents as would have been known by one of ordinary skill and as suggested by the exemplary teaching thereof by Ikeda et al. (Figs. 1 and 2).

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Inoue JP 2003-101384 provides a Japanese language version of the subject matter of the Inoue US App. Publication used in the rejections above.

Funemi et al. JP 2000-114923 discloses another type of capacitance formed on a SAW filter substrate by facing wiring electrodes and ground reflector electrodes (see the abstract, the last two lines thereof and the figures).

Noguchi et al. JP 2002-208835 provides a Japanese language version of the subject matter of the Noguchi et al. US Pat. used in the rejections above.

Inoue JP 2003-110404 discloses a SAW filter meeting the claim limitations (see Fig. 4) except for the capacitance element.

Shimamura et al. JP 10-163808 discloses a SAW ladder filter and an attenuation pole creating circuit 4 (see Fig. 2) which can include both inductance elements and capacitance elements (see Figs. 13 and 14).

Ehara et al. U.S. 5,905,418 also discloses a SAW ladder filter (see Fig. 11) with an attenuation pole creating circuit that can include inductance and capacitance elements (see Figs. 30-33 and col. 10, lines 38-40).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara Summons whose telephone number is (571) 272-1771. The examiner can normally be reached on M-Th, M-Fr.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bob Pascal can be reached on (571) 271-1769. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

bs
September 19, 2004

Barbara Summons

BARBARA SUMMONS
PRIMARY EXAMINER